



## Leishmaniasis emergence and climate change

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### Abstract:

Spatio-temporal modelling of the distributions of the leishmaniases and their sandfly vectors is reviewed in relation to climate change. Many leishmaniases are rural zoonoses, and so there is a foundation of descriptive ecology and qualitative risk assessment. Dogs are widespread reservoir hosts of veterinary importance. Recent statistical modelling has not always produced novel general conclusions, exemplifying the difficulty of applying models outside the original geographical region. Case studies are given for transmission cycles involving both cutaneous and visceral leishmaniasis in the Old World and the Americas. An important challenge is to integrate statistical spatial models based mainly on climate with more explanatory biological models. Ecological niche models pose difficulties because of the number of assumptions. A positive association has been reported between the El Nino cycle and the annual incidence of visceral leishmaniasis in Brazil, but more basic research is needed before tackling other climate-change scenarios, including leishmaniasis emergence in northern Europe.

**Source:** [http://web.oie.int/boutique/index.php?page=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)&id\\_produit=115&id\\_produitEuroSurveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)694&lang=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)&fiche=rechEuro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)1&PHPSESSID=Euro Surveillance \(Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin\)6bb334f9e08994fe55ba3a6cd34c935b](http://web.oie.int/boutique/index.php?page=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)&id_produit=115&id_produitEuroSurveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)694&lang=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)&fiche=rechEuro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)1&PHPSESSID=Euro Surveillance (Bulletin European Sur Les Maladies Transmissibles; European Communicable Disease Bulletin)6bb334f9e08994fe55ba3a6cd34c935b)

### Resource Description

#### Early Warning System:

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

#### Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Temperature

# Climate Change and Human Health Literature Portal

**Temperature:** Fluctuations

**Geographic Feature:**

resource focuses on specific type of geography

None or Unspecified

**Geographic Location:**

resource focuses on specific location

Global or Unspecified

**Health Impact:**

specification of health effect or disease related to climate change exposure

Infectious Disease

**Infectious Disease:** Vectorborne Disease

**Vectorborne Disease:** Fly-borne Disease

**Fly-borne Disease:** Leishmaniasis

**Intervention:**

strategy to prepare for or reduce the impact of climate change on health

A focus of content

**Mitigation/Adaptation:**

mitigation or adaptation strategy is a focus of resource

Adaptation

**Model/Methodology:**

type of model used or methodology development is a focus of resource

Methodology

**Resource Type:**

format or standard characteristic of resource

Review

**Timescale:**

time period studied

Time Scale Unspecified

**Vulnerability/Impact Assessment:**

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content